



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------------|
| 09/927,102 | 08/10/2001 | Michael Weber-Grabau | TTI-31000 | 3815 |
| 28584 | 7590 | 06/28/2006 | EXAMINER | |
| STALLMAN & POLLOCK LLP 353 SACRAMENTO STREET SUITE 2200 SAN FRANCISCO, CA 94111 | | | | ROSENBERGER, RICHARD A |
| | | ART UNIT | | PAPER NUMBER |
| | | 2877 | | |

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/927,102 | WEBER-GRABAU ET AL. |
| | Examiner | Art Unit |
| | Richard A. Rosenberger | 2877 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 07 April 2006.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 45,46,48-54,56-62,64 and 65 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 45,46,48-54,56-62,64 and 65 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 45-46, 48-54, 56-62, and 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (US 5,766,360) in view of Toprac et al (US 6,304,999) and the acknowledged prior art of the instant specification.

As in the independent claims 45, 53 and 61, Sato et al shows a wafer processing tool with a plurality of wafer processing “slots”, or stations. There is a wafer inspection station (58 in figure 2, for example), and a wafer handler (13 in figure 1, 30 in figure 2) to transport the wafers being processed between the processing stations and to and from the inspection station. There is a data processor to analyze the inspection data and control the processing of the wafer based upon the data (see for example column 5, lines 6-10). Note in particular that the inspection station receives and inspects the wafers both after the “pre-process chamber” (column 4, lines 1-4) and after the “thin film growth chamber” (column 4, lines 28-33). Thus the inspection station in the Sato et al reference does “analyze the wafer after processing in any of the processing stations”. Further, the system is “operable to alter the flow in the wafer processing tool based upon” the measurements; see column 4, lines 1-22 which describes the control of process flow of a wafer based upon the measurements, either directly to a thin film

growth chamber (lines 4-8) or to a pre-preprocess chamber (lines 10-14), and the control of process flow back into the pre-process chamber if further processing is needed and, if the pre-processing cannot be adequately performed, to a defective substrate storage holder (lines 14-18).

Sato et al does not teach that the wafer inspection tool can be a scatterometry instrument. Scatterometry instruments are known, and it is known to use such scatterometry instruments in a wafer processing when such an instrument is appropriate for the particular inspections being made on the wafer; see Toprac et al (column 4, lines 11-12) and the instant specification, page 4, or example. Such scatterometry is known to use “characteristic optical signatures” in the processing; see the instant specification, the sentence bridging pages 10 and 11, which treats such use of signatures as known in the art, treating the techniques of obtaining and using these signatures as so well known no disclosure of to obtain and use them as so well known no particular disclosure beyond mere mention is needed.

Given the known use of a single inspection station to serve a plurality of processing stations, as shown by Sato et al, and the general known use of scatterometry to inspect and control processing (as shown by Toprac et al and in the instant specification), it would have been obvious to use such scatterometry-based inspection and control in conjunction with a plurality of processing stations in a cluster tool of the like in order to obtain the benefits of automatic inspection and control after each processing step without having to remove the wafers from the processing tool.

As in claims 46, 54, and 62, Sato teaches sending the wafer for further processing in one of the processing stations which has already processed the wafer (column 4, lines 10-14).

As discussed above, and more specifically for claims 48, 56 and 64, the disclosed manner in which the inspection station of Sato et al decides to sent a wafer directly to the thin film growth chamber or to a pre-process chamber, and to return the wafer to the “pre-process chamber” or send it on to the “thin film growth chamber” or to a defective wafer storage chamber is a manner of “changing the order in which the wafer visits the plurality of wafer processing slots”, and constitutes control of process flow. Given this general teaching of using the inspection data to control the processing of the wafer including which processing station, or “slot”, it is sent to, it would have been obvious to use any other type test in combination with any other type of processing with similar control as appropriate for the particular processing being done.

As for claims 49-52, 57-60 and 65, the claimed use of a model, and manners of carrying out scatterometry, appears to be, and appears to be intended to be, statements of known manners of carrying out scatterometry.

3. The independent claims 45, 53, and 61 have been amended to include the limitation that the data processor can alter the process flow of the wafer. As set forth above, this is taught by Sato et al. The suggestion in the remarks filed 7 April 2006 that Sato et al does not teach or suggest “alteration of process flow within the tool, that is, the

sequence of steps by which a wafer is processed in the tool" (remarks, page 7, lines 20-22) appears to be incorrect.

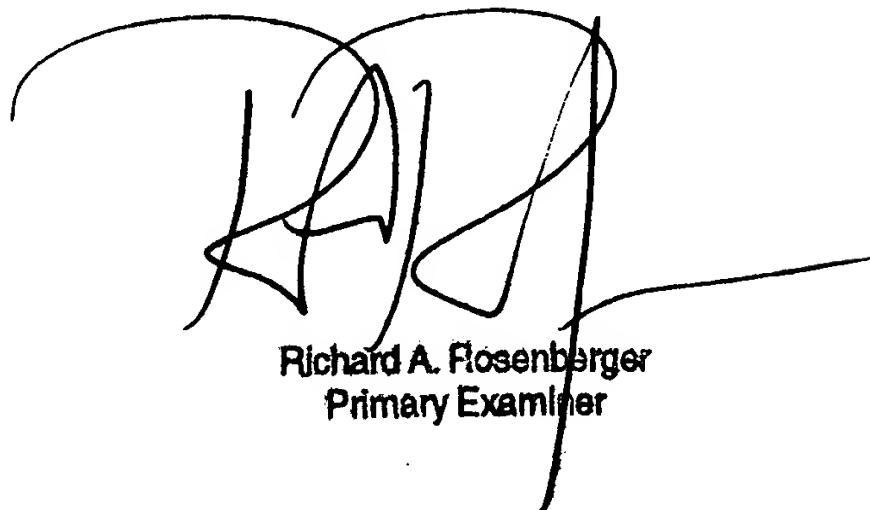
4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
23 June 2006



Richard A. Rosenberger
Primary Examiner